Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

Online Proceedings

SESSION 1O

HEALTH IN GLOBAL COMMUNITIES

Session Moderator: Stephen Gloyd, Global Health
288 MGH
1:15 PM to 2:45 PM
* Note: Titles in order of presentation.

The Native Comic Book Project
Corinna Tordillos, Senior, Biochemistry, American Indian Studies
Mentor: Dedra Buchwald, Epidemiology
Mentor: Colleen Echohawk, School of Public Health - Epidemiology , Native People for Cancer Control

Tribal communities often lack access to high-quality healthcare, prevention programs, cancer education, cancer screening tests, and cancer clinical trials. As a result, American Indians and Alaska Natives experience the worst cancer-related disparities and the poorest survival rates of all racial and ethnic groups in the U.S. Comic books have long been used as an educational tool to improve public health. In 2008, the Native Comic Book Project was launched as a youth-focused community education project of Native People for Cancer Control, a Community Network Program Center funded by the National Cancer Institute. The purpose of this ongoing project is to use comic book creation as a way to educate Native youth about cancer, especially methods of cancer prevention. Along with basic art skills, participants learn about traditional foods and wellness, non-ceremonial tobacco use, human papillomavirus, and obesity prevention. Modeled after Dr. Michael Bitz's Comic Book Project, the Native Comic Book Project has been adapted for both urban and reservation-based youth by incorporating Native storytelling and traditional values. Its ultimate goal is to promote healthy decision-making for Native youth and their communities. We are currently conducting a formal evaluation of this project by using pre- and post-intervention assessments to measure knowledge, habits, and decision-making among youth participants regarding tobacco use, healthy eating, exercise, and human papillomavirus. The Native Comic Book Project has been implemented at 10 sites and has enrolled 55 participants. Data will be fully analyzed in Summer 2013. Future planned activities for research and education include developing more youth-oriented health interventions.

POSTER SESSION 4

MGH 241, Easel 156
4:15 PM to 5:45 PM

Optimization of Chemosensitization via AKT Inhibition in Acute Myeloid Leukemia
Alparslan Asan, Senior, Biochemistry
Mentor: Roland Walter, Translational Science and Therapeutics, Fred Hutchinson Cancer Center

In adults, acute myeloid leukemia (AML) generally remains difficult-to-treat, and most patients are currently expected to die either of their disease or treatment-related toxicities. The need for novel therapies is thus unquestioned. With increasing availability of specific small molecule inhibitors, one line of research has focused on targeting signaling pathways that are pivotal for the in vivo growth, survival, and propagation of AML cells as a means to improve therapeutic outcomes in this disease. Emerging evidence suggests that the phosphatidylinositol 3-kinase (PI3K)/protein kinase B (AKT) pathway, a key physiologic regulator of transcription, translation, cell cycle progression, differentiation, metabolism, and suppression of apoptosis, could provide a rational drug target in AML. Constitutive activation of AKT signaling is indeed observed in many patients with AML, and several groups have reported inferior relapse-free and overall survival in AML cases with AKT activation. Given these data, we recently conducted an early phase clinical trial testing MK-2206, a highly specific allosteric AKT inhibitor, in patients with relapsed AML. However, MK-2206 has insufficient anti-AML activity at tolerated doses. Therefore, the goal of my project in the preclinical studies that I am currently carrying out is to identify signaling pathways that are critically important for AML cell survival in the presence of MK-2206 with the goal of developing combination therapies that optimize chemosensitization that can be achieved with AKT inhibitors. This is being done by mixing the MK-2206 inhibitor with various conventional chemotherapic drugs and measuring their toxicity on different AML cell lines by use of flow cytometry.